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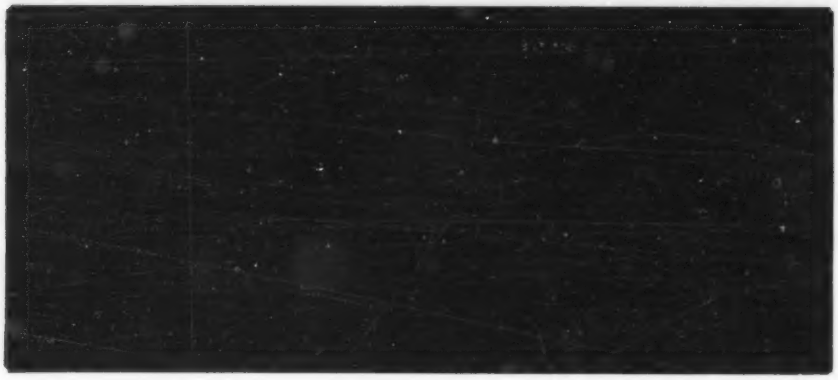

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Geographic Labour Mobility in Canada

by

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ABSTRACT

This paper assesses the contribution made by geographic mobility to labour market adjustment over the past two and a half decades, based on an examination of: regional disparities and the effect of interregional migration on these disparities; patterns of interregional migration flows and their responsiveness to economic incentives; and, a comparison of geographic mobility in Canada and the United States.

The main findings are:

- Interregional migration flows have been substantial and responsive to large or changing economic incentives over the 1961-86 period;
- Although regional disparities remain large in Canada, they would have been larger still without the redistribution of labour resulting from interregional migration; and,
- Mobility rates in Canada and the United States are comparable, and migration appears to be just as efficient at redistributing labour in Canada as it is in the United States.

The paper concludes that interregional migration in Canada has contributed significantly to labour market adjustment over the past 25 years. Although greater flexibility may be attainable through increased migratory flows, the evidence reviewed indicates that existing flows are substantial.

A brief summary of the empirical literature on the determinants of migration is provided in an appendix. In general, the results of the studies reviewed agree with this paper's finding that migration flows have been substantial and responsive to economic incentives.

RÉSUMÉ

Le présent document traite du rôle de la mobilité géographique dans l'adaptation du marché du travail au cours des 25 dernières années en utilisant comme critères d'évaluation: les disparités régionales et l'effet de la migration interrégionale sur ces disparités; le profil des mouvements migratoires interrégionaux et leurs réactions aux stimulants économiques et une comparaison de la mobilité géographique au Canada et aux États-Unis.

Les principales constatations qui se dégagent sont les suivantes:

- de 1961 à 1986, les flux migratoires interrégionaux ont été considérables, réagissant à des stimulants économiques importants ou variables;
- même si les disparités régionales sont toujours importantes au Canada, elles l'auraient été davantage sans la réaffectation de la main-d'oeuvre résultant de la migration interrégionale;
- les taux de mobilité au Canada et aux États-Unis sont comparables et la migration semble être aussi efficace au Canada qu'aux États-Unis pour ce qui est de la réaffectation de la main-d'oeuvre.

En conclusion, la migration interrégionale au Canada a grandement contribué à l'adaptation du marché du travail au cours de 25 dernières années. Même si une augmentation des mouvements migratoires pourrait accroître davantage la flexibilité du marché du travail, les données disponibles indiquent que les flux existants sont considérables.

Un bref résumé de la littérature empirique sur les déterminants de la migration apparaît en annexe. En général les résultats des études recensées concordent avec les conclusions de ce document, à savoir que les flux migratoires sont à la fois considérables et très sensibles aux stimulants économiques.

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1. Introduction

Geographic labour mobility contributes to labour market adjustment by redistributing labour supply from regions with excess labour supply to regions with tighter labour market conditions. The need for redistribution over the longer-term arises when regional labour supply growth persistently exceeds labour demand growth. This has occurred is some regions, in part, because of high fertility rates and/or high labour force participation rates, and in other regions because the industrial composition of their economies results in low labour demand growth. Over shorter-term periods, excess supply of labour can develop in regional labour markets because of shocks to regional economies. Geographic mobility can reduce unemployment in regions with excess supplies of labour and it can also reduce the chances of a regional economy overheating when experiencing strong economic growth.

The purpose of this study is to assess the role that geographic labour mobility has played in labour market adjustment in Canada over the past 25 years. This assessment is made by considering the pattern of interregional migration flows in the past and how they have responded to changes in economic circumstances; by examining the potential contribution of migration to reducing unemployment disparities across regions, and; by comparing the degree of labour mobility in Canada and the United States.

The paper is organized as follows. It begins with a description of the dispersion of provincial wage and unemployment rates in Section 2. Next, in Section 3, there is an assessment of the effectiveness of migration at reducing regional labour market imbalances based on a review of interregional migration flows over the past 25 years, and a set of hypothetical provincial unemployment rates that might have existed in a "no-migration" scenario. Mobility in Canada is then compared to mobility in the United States in Section 4. The paper's conclusions are presented in Section 5.

2. Migration and the Dispersion of Provincial Wage and Unemployment Rates

Geographic labour mobility facilitates adjustment in the labour market by reducing labour market mismatches. As labour moves from regions with an excess supply of labour to regions with tighter labour markets, national unemployment falls. In addition, the migration of workers from high-unemployment to low-unemployment regions will reduce regional differences in economic conditions.

The declining labour supply in low-wage regions raises the marginal product of labour and hence wages. The reverse happens in high-wage regions and this process leads to reductions in the size of interregional wage gaps. As geographic mobility reduces regional imbalances in labour supply and labour demand, regional differences in wages and unemployment rates narrow. This suggests that by examining regional differences in wage and unemployment rates, some insight can be gained on the contribution of geographic mobility to reducing regional labour market imbalances.

Table 1 presents provincial real average wages and unemployment rates, indexed so that Ontario equals 100, for the 1966-86 period.(1) In Canada, differences in economic conditions among provinces, as measured by wage and unemployment rates, have been large over the past two decades. Although the dispersion of provincial wages and unemployment rates (as measured by the weighted variance around the all province

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(1) There is a break in the wage data in 1983 because the survey used to collect wage information for Statistics Canada's Employment, Earnings and Hours series was substantially changed. The wage data time series changed slope as well as level at this break. Therefore, even after adjustment is made for the change in level between the two series, pre- and post-March 1983 comparisons must be interpreted with caution.

mean)[1], was lower in 1971 than in 1966, it widened substantially between 1971 and 1981. Provincial differences in unemployment rates increased further over the 1981-86 period, reflecting in part the lingering impact of the 1981-82 recession, and their dispersion in 1986 was comparable to that of 1966.[2] Real wage disparities narrowed between 1981 and 1986 and fell below their 1966 level. Nevertheless, regional differences remained large in 1986.

Throughout the 1966-86 period, relative labour market conditions remained fairly stable. The Atlantic provinces and British Columbia were generally high unemployment rate provinces while the prairie provinces, particularly Saskatchewan, were low unemployment rate provinces.

The evolution of relative wages and unemployment rates at the regional level suggests that, in some instances, rigidities in regional real wages may have contributed to the persistence of relatively high unemployment rates. Real average weekly wages have not always adjusted in the expected direction over the 1966-86 period, given the concurrent labour market conditions. Some provinces have experienced high and/or rising relative real wages at the same time that they have experienced high and/or rising relative unemployment rates. For example, between 1971 and 1981, both unemployment rates and real average weekly wages increased in Nova Scotia and New Brunswick, relative to Ontario.[3]

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(1) See footnote 3, Table 1, for the definition of the weighted variance.

(2) The same picture emerges when the analysis is made in terms of the employment to population ratio rather than unemployment rates.

(3) Differences in labour productivity growth and shifts in the industrial distribution of employment contributed somewhat to the increase in the real average weekly wages of Nova Scotia and New Brunswick relative to Ontario, but most of the increase is not explained by these factors.

Table 1: INDICES OF REAL AVERAGE WEEKLY WAGES AND UNEMPLOYMENT RATES

(Ontario = 100)

	Real Average Weekly Wage Index[1]				Unemployment Rate Index			
	1966	1971	1981	1986[2]	1966	1971	1981	1986
Nfld.	92	95	95	93	223	156	211	286
P.E.I.	-	-	79	85	-	-	170	191
N.S.	82	83	91	92	181	130	155	191
N.B.	90	89	100	101	204	113	174	206
Que.	103	101	111	106	158	135	156	157
Ont.	100	100	100	100	100	100	100	100
Man.	88	92	95	97	108	106	89	110
Sask.	91	89	102	100	58	65	71	110
Alta.	101	102	115	113	96	106	58	140
B.C.	107	103	112	105	177	133	102	180
Weighted Variance[3]	100	69	156	75	100	25	84	100

(1) Provincial average weekly wages were deflated by a constructed regional city price index. A Conference Board regional price index for 1979 was extended back to 1966 and forward to 1986 based on Statistics Canada regional city price indices.

(2) The 1986 wage data were linked to the pre-March 1983 data (there is a break in the Employment, Hours and Earnings data in 1983).

(3) The weighted variance is defined as $V = \sum_{i=1}^{m} p_i(\bar{X}_i - X^2)$ where X_i is the wages index or the unemployment rate index for province i, $\bar{X}$ is a weighted mean of X_i and the p_i are employment distribution shares for wages and labour force distribution shares for unemployment. V is then expressed in index form, with 1966 = 100.

Sources:

Wages - Employment, Earnings and Hours, Statistics Canada, Cat. 72-002.

Price Indices - James Frank, Provincial Differences: A Challenge to Compensation and Relocation Policies, The Conference Board, 1981. The Consumer Prices Index, Statistics Canada, Cat. 71-201.

Unemployment Rate - Historical Labour Force Statistics, Statistics Canada, Cat. 71-201.

The wide dispersion of provincial wage and unemployment rates could indicate that not all economically desirable moves are taking place because of market failure. For instance, lack of information on labour market conditions across the country could impede migration and contribute to the persistence of these interprovincial differences in wage and unemployment rates.

On the other hand, the wide dispersions could be consistent with the utility-maximizing behavior of potential migrants and reflect equilibrium conditions in regional economies. Both economic and non-pecuniary factors influence migration decisions. Non-pecuniary factors may compensate for provincial differences in labour market conditions. For instance, a potential migrant may prefer to live in a province with relatively low wages and high unemployment because it has a pleasant climate.

Clearly, a cursory examination of provincial differences in wage and unemployment rates cannot reveal the extent to which migration responds to, and helps to reduce regional labour market imbalances. To gain some insight on these important questions, alternative evidence is needed. The following section reviews the patterns of net and gross interregional migration flows in Canada over the past 25 years to see how they have responded to economic incentives and to assess their potential contribution to reducing the dispersion of unemployment rates across regions.

3. Is Migration Effective in Reducing Regional Imbalances?

3.1 A Short History of Geographic Labour Mobility in Canada

Table 2 presents net and gross interregional migration flows for the 1961-87 period.(1) Gross flows refer to total migratory inflows and outflows whereas net flows refer to the resultant change in population. For example, over the entire 1961-87 period (see the bottom two rows in the table), there was a gross inflow of 2.5 million people into Ontario, but because 2.2 million people moved out of Ontario, the net inflow was only 0.3 million people.

As illustrated by the table, net migration flows have been fairly responsive to large and/or changing economic disparities. The evolution of net migratory flows to Alberta is a striking example of this. Net in-migration between 1976 and 1981 totalled 186,400, an amount equivalent to 8.3 per cent of Alberta's 1981 population level. During this five-year period, which was dominated by strong economic growth in Alberta,(2) net migration to Alberta was more than double that experienced over the entire 1961-76 period. This indicates that migration flows respond strongly to economic incentives.(3)

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(1) For interprovincial migration flows, see Table A-1 in Appendix One.

(2) Employment in Alberta increased by 30 per cent between 1976 and 1981, which was substantially greater than the 17 per cent increase in the national employment level. Real GDP increased by 46 per cent in Alberta compared to 13 per cent for Canada, over the same period.

(3) See Appendix Two for a brief review of empirical studies on the determinants of interprovincial migration in Canada. These studies have found that economic incentives, especially income, exert a strong influence on migration flows.

It is also interesting to note that during the same five-year period, between 1976 and 1981, net migration flows to Alberta were exceptionally large relative to gross inflows, representing 40 per cent of gross in-migration to Alberta. A high ratio of net to gross migration indicates a significant amount of labour supply reallocation for a given amount of gross migration, and in a sense, tells us about the "efficiency" of migration.(1) Thus, Alberta's high net-to-gross migration ratios over the 1976-81 period demonstrate that migration can be a very effective equilibrating mechanism between regions that grow at very different rates.

Between 1982 and 1987, large net out-migration from Alberta occurred as the relative economic position of Alberta deteriorated sharply due to weak oil prices. During this five year period, net out-migration from Alberta totalled 98,000 which represented 4.2 per cent of Alberta's 1982 population level. This indicates that migration flows respond quickly to changes in economic incentives. The decline in population that occurred as a result of migration out of Alberta over the 1982-87 period was greater than the number of unemployed in Alberta in 1982.

The evolution of migration to British Columbia illustrates that, even when non-economic incentives for migration, such as climate, are important, economic factors still significantly influence migration flows. In the 1960s and 1970s net in-migration to British Columbia averaged about 200,000 per decade, or 10.3 per cent and 8.7 per cent respectively, of the mid-decade population levels. In the 1980s, economic conditions in British Columbia deteriorated significantly because of soft world and domestic markets for raw materials. As a result of the turnaround in the economic environment (reflected in the decline in relative real wages and the rapid increase in the provincial unemployment rate),

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(1) This is not to deny the usefulness of bilateral gross migration even if it results in little overall net population redistribution. Bilateral gross migration may perform a useful role in reallocating various sub-groups of workers (e.g. occupational, industrial) to the regions where they are most needed.

Table 2: INTERREGIONAL MIGRATION FLOWS, 1961-66 TO 1986-87
(in thousands)

		ATLANTIC PROVINCES(1)	QUE.	ONT.	MAN.	SASK.	ALTA.	B.C.
1961-66	Net	-71.0	-19.9	85.4	-23.5	-42.1	-2.0	77.8
	Gross(2)	(-233.8)	(-238.4)	(468.2)	(-156.1)	(-155.8)	(-232.0)	(262.3)
1966-71	Net	-58.1	-122.7	150.7	-40.7	-81.4	32.0	115.0
	Gross	(-253.8)	(-317.9)	(574.2)	(-182.0)	(-195.9)	(289.5)	(356.9)
1971-76	Net	30.0	-77.6	-38.6	-26.8	-40.8	58.6	92.3
	Gross	(235.9)	(-263.5)	(-514.6)	(-172.0)	(-167.4)	(352.1)	(377.2)
1976-81	Net	-37.3	-156.5	-57.8	-42.4	-9.7	186.4	122.6
	Gross	(-198.5)	(-279.8)	(-485.6)	(-143.8)	(-117.4)	(460.8)	(350.2)
1981-82	Net	-11.3	-25.8	-5.7	-2.6	-0.3	36.6	8.7
	Gross	(-43.4)	(-47.1)	(-89.3)	(-24.2)	(-22.1)	(100.0)	(58.0)
1982-83	Net	9.8	-24.7	23.6	2.5	3.6	-11.7	-1.5
	Gross	(36.8)	(-45.6)	(86.9)	(20.5)	(21.1)	(-71.0)	(-45.7)
1983-84	Net	4.4	-17.4	36.4	-0.3	2.1	-32.0	6.6
	Gross	(29.5)	(-40.4)	(89.0)	(-17.4)	(18.9)	(-73.1)	(44.1)
1984-85	Net	-1.3	-8.0	33.9	-0.6	-1.4	-20.8	-2.0
	Gross	(-27.0)	(-33.0)	(86.7)	(-17.6)	(-17.8)	(-63.7)	(-42.1)
1985-86	Net	-9.0	-5.3	33.6	-2.3	-6.9	-3.8	-4.5
	Gross	(-33.8)	(-31.0)	(89.4)	(-19.6)	(-22.4)	(-57.9)	(-48.1)
1986-87	Net	-8.0	-3.7	45.3	-3.1	-7.1	-29.7	7.6
	Gross	(-39.9)	(-36.0)	(120.6)	(-25.5)	(-27.3)	(-92.8)	(67.2)
1981-87	Net	-15.4	-84.9	167.1	-6.4	-10.0	-61.4	15.0
	Gross	(-196.1)	(-233.1)	(556.2)	(-122.2)	(-123.9)	(-422.0)	(297.2)
1961-87	Net	-151.8	-461.6	306.8	-139.6	-184.1	213.6	422.6
	Gross	(1,088.1)	(-1,332.7)	(2,502.5)	(-776.2)	(-760.5)	(1,692.9)	(1,643.9)

Notes:

1. Excludes Intra-Atlantic moves.

2. Refers to gross in-flow or out-flow depending on the direction of the net flow. If the province gained population through migration the gross in-flow is presented whereas if the population declined due to migration, then the gross out-flow is shown.

Source: Postcensal Annual Estimates of Population by Marital Status, Sex and Components of Growth for Canada and the Provinces, Statistics Canada, Cat. 91-210.

British Columbia's migration flows changed substantially. During the 1981-87 period, there were three years of net out-migration and total net in-migration for the five year period was down to a meager 15,000.

The evolution of net migration to the Atlantic provinces suggests that non-market economic incentives can strongly influence regional migration. During the 1960s there was net out-migration from every Atlantic province. The extent of net out-migration was large relative to the population of those provinces. During the first half of the 1970s there was a sharp reversal in this pattern and every Atlantic province experienced net in-migration, with the exception of Newfoundland. Even Newfoundland experienced much smaller net out-migration flows during that period than in earlier years.

This reversal in migration flows coincided with the Unemployment Insurance Program (UI) reform of 1971. The reform eased the qualification criteria and raised payments under the program: the benefit levels were increased, the maximum duration of benefits lengthened, the eligibility requirements reduced, and regionally extended benefits were introduced. All of these changes had the effect of reducing the private costs of being unemployed. There is empirical evidence to support the view that the changes to the UI program, particularly the introduction of regionally extended benefits, significantly influenced regional migration flows.(1)

During the second half of the 1970s there was another reversal in the net migratory flows of the Atlantic provinces. The traditional pattern of net out-migration from the Atlantic provinces was restored. This change is perhaps not unrelated to revisions to the UI program in 1979 and 1980, which made the program somewhat more restrictive. However, net migration outflows from this region

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(1) See Shaw (1985).

remained small compared to what they had been prior to 1971, and compared to gross flows. This may reflect the fact that the UI program remained, even after the revisions of 1979 and 1980, substantially more generous than it was before 1971. Thus the reversals in the Atlantic provinces' net migration flows provide yet another illustration that migration responds to economic incentives of one form or another originating either from market or non-market forces.

Manitoba and Saskatchewan have generally experienced net out-migration in spite of their relatively low unemployment rates. This is partly due to the relatively slow growth in labour demand found in agricultural economies. However, in 1982 both provinces recorded slight inflows and Saskatchewan did again in 1983. These inflows were in part attributable to larger return migration flows as disappointed migrant workers from British Columbia and Alberta moved back to their province of origin.

Quebec experienced net migratory outflows over the entire 1961-87 period. The outflows were particularly large during the 1966-71 and 1976-81 periods. Since 1981, gross outflows have declined somewhat and gross inflows have increased considerably, resulting in a reduction in net outflows. This decline in net outflows reflects the strength of Quebec's recovery relative to many other regions of Canada.

As might be expected, given the evolution of its relative economic situation, Ontario recorded net inflows of population in the 1960s, net outflows in the 1970s and net inflows again since 1982. In the five year period since 1982, net migration into Ontario has exceeded 170,000 as Ontario recovered more rapidly from the 1981-82 recession than other regions.

This review of the pattern of interregional migration flows over the 1961-87 period has demonstrated that migration flows have responded both strongly and relatively rapidly to changes in economic incentives, whether originating from market or non-market sources. Net migration flows have generally helped to reduce regional labour market imbalances.

3.2 Migration and the Dispersion of Provincial Unemployment Rates

Geographic mobility reduces the dispersion of provincial unemployment rates when labour moves from high-unemployment to low-unemployment regions. This section attempts to assess whether interprovincial migration flows have made a significant contribution to the reduction of provincial differences in unemployment rates.

Quantifying the effect of migration on provincial unemployment rates is a difficult analytic task because the link between the two is extremely complex. Interprovincial migration results in qualitative as well as quantitative changes in labour supply, and also affects labour demand. To gain some insight on the role that migration has played in reducing regional labour market imbalances, a set of hypothetical provincial unemployment rates have been constructed. The hypothetical rates are those that might have prevailed in 1981 on the hypothetical assumption that there had been no interprovincial migration over the 1976-81 period, but all other economic events had unfolded as they actually did; that is, holding everything except provincial unemployment and labour force levels constant in the calculations.

Table 3 contains the hypothetical unemployment rates as well as the variables used to calculate them. The first step in the calculation was to estimate what 1981 provincial labour supplies would have been, in the absence of interprovincial migration over the 1976-81 period. This was done by applying the 1981 labour force participation rate of each province, to the number of working-age net migrants over the 1976-81 period. For example, over the 1976-81 period, net-outmigration from Newfoundland totalled 19,000. Of this total, 15,000 of the migrants were working age (15-64 years). The 1981 labour force participation rate in Newfoundland was 52.6 per cent. Applying this rate to the number of working-age net migrants yields 8,000. Thus, it is

Table 3: The Impact of Migration on Provincial Unemployment Rates: Hypothetical Unemployment Rates in a "No Migration" Scenario (1)

	Net Migration, 1976-81 (000s)			Labour Force (000s)		Unemployment (000s)		Unemployment Rate (%)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Total	15 - 64 Years	Labour Force Participants (estimated)	Actual 1981	Hypothetical 1981 ((4) - (3))	Actual 1981	Hypothetical 1981 ((6) - (3))	Actual 1981	Hypothetical 1981 ((7)/(5))
Nfld.	-19	-15	-8	208	216	29	37	13.9	17.1
P.E.I.	-1	-1	-1	53	54	6	7	11.2	13.0
N.S.	-7	-7	-4	359	363	36	40	10.2	11.0
N.B.	-10	-9	-5	286	291	33	38	11.5	13.1
Que.	-157	-109	-67	3040	3107	314	381	10.3	12.3
Ont.	-58	-59	-40	4464	4504	293	333	6.6	7.4
Man.	-42	-31	-20	490	510	29	49	5.9	9.6
Sask.	-10	-8	-5	446	451	21	26	4.7	5.8
Alta.	186	154	111	1198	1087	46	-65	3.8	-6.0
B.C.	123	88	57	1361	1304	91	34	6.7	2.6

Notes:

(1) Hypothetical provincial unemployment rates were calculated for 1981, assuming that there was no interprovincial migration over the 1976-81 period, and that everything else remained unchanged. Provincial participation rates were applied to number of working age migrants to estimate the impact of migration over the 1976-81 period on provincial labour forces. Assuming that migration had no effect on provincial employment.

Source: Statistics Canada, The Labour Force, cat. 71-001.

estimated that the net out-migration of 19,000 people from Newfoundland over the 1976-81 period, resulted in its 1981 labour force being 8,000 lower than it would have been if there was no migration over the 1976-81 period, and everything else was unchanged.

The second step involved estimating what provincial unemployment would have been in 1981, in the absence of migration over the 1976-81 period. Because it was assumed that all else was unchanged, (provincial employment was fixed at 1981 levels) the estimated changes in the labour force in column (3) changed provincial unemployment one-for-one. For example, in the absence of migration, it was estimated that Newfoundland's labour force would have been 8,000 higher in 1981. Because employment is set at its actual 1981 level, it is estimated that the 8,000 increase in labour supply increases unemployment by 8,000. These hypothetical provincial unemployment levels are shown in column (7).

The hypothetical unemployment rates, based on the hypothetical provincial unemployment and labour force estimates, are presented in column (9). These estimates suggest that in the absence of migration, regional disparities in unemployment would have been much larger. Newfoundland's hypothetical unemployment rate was 17.5 per cent, 3.6 percentage points higher than the actual 1981 rate of 13.9 per cent. All provinces, except Alberta and British Columbia, experienced out-migration over the 1976-81 period. Without migration, British Columbia's hypothetical unemployment rate would have been 4.1 percentage points lower and Alberta's hypothetical rate suggests that job offers would have exceeded the labour force (by 65,000 workers).

The hypothetical unemployment rates calculated in this exercise are based on the assumption that, outside of changing interprovincial migration flows, everything else is held constant. To the extent

that other factors changed in response to actual migration, these estimates tend to exaggerate the role that migration has played as a safety valve.

Specifically, significant changes in population influence labour demand. If net migration flows into a province are large relative to its base population, then the need for immediate investment in infrastructure increases the demand for labour and exacerbates the boom. However, the increased demand for labour arising from migratory inflows will not exceed the increased labour supply due to migration.(1) Therefore, net migration in the "right" direction does help to relieve regional pressures. Clearly, both Alberta and British Columbia would have encountered bottlenecks in the absence of migration.

Between 1971 and 1981, average real wages in Alberta increased by 13 per cent relative to Ontario's (see Table 1). There is no doubt that without the massive net inflow of workers to Alberta that occurred during the period, real wages in Alberta would have grown even more rapidly relative to wages in the rest of Canada and that this would have aggravated regional disparities and at the same time reduced output and employment expansion both in Alberta and in Canada as a whole.

More recently, large migratory inflows to Ontario have helped contain real wage growth in the province. Ontario has experienced strong economic growth during the current recovery, with its unemployment rate declining from 10.4 per cent in 1983 to only 6.1 per cent in 1987, well below the national rate of 8.9 per cent. A net inflow of 173,000 migrants over the 1982-87 period helped keep Ontario's economy from overheating. Since 1984, annual rates of change of real average hourly earnings in the province have been less than 1 per cent.

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(1) Vanderkamp (1970) has estimated that for every five unemployed people who leave the Maritimes, two previously employed people lose their jobs. Copithorne (1981) also obtained similar results.

4. A Comparison of Geographic Labour Mobility in Canada and the United States

4.1 Mobility Rates and Net-to-Gross Migration

The United States is considered by many, to have a highly mobile labour force. This section compares geographic mobility in Canada to that in the United States. Table 4 presents mobility rates (the percentage of the population living at a different residence on census day compared to five years earlier) for both countries based on census data. The U.S. census is conducted every ten years but the mobility rates refer to moves occurring during the five years prior to the census date rather than to all moves between census dates. The periods covered are 1956-61, 1966-71, 1976-81 and 1981-86 for Canada, and 1955-60, 1965-70 and 1975-80 for the United States.

The mobility rates for all changes of residence (i.e. all moves) and changes of municipality/county[1] (i.e. moves between municipalities/counties) are quite similar for the two countries. Between 1976 and 1981, 10.6 million Canadians changed their residence at least once. This figure, which represents 47.6 per cent of the Canadian population in 1981, suggests that Canadians are fairly mobile. The comparable U.S. figure is 44.5 per cent or 3.1 percentage points less than for Canada. The Canadian mobility rate of 20.3 per cent for changes of municipality is 0.8 percentage points larger than the rate for counties in the United States.

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(1) Municipalities and counties are geographic census divisions for Canada and the United States respectively. Canadian municipalities are, on average, slightly smaller in geographic size than U.S. counties (approximately 2400 Km^2 versus 2900 Km^2).

Table 4: MOBILITY RATES[1] FOR CANADA AND THE UNITED STATES
(per cent)

	Canada				United States		
	1956-61	1966-71	1976-81	1981-86	1955-60	1965-70	1975-80
Total movers within country							
All changes of residence	42.4	47.4	47.6	43.7	47.3	45.6	44.5
Between municipalities or counties	17.2	19.8	20.3	19.5	17.4	22.3	19.5
Between provinces or states	3.4	4.3	5.1	4.0	8.9	8.6	9.7

Note: (1) Percentage of the population having a different residence at the end of the period compared to the beginning of the period.

Source: Canada - 1956-61 from International Migration and Immigrant Settlement, Manpower and Immigration, 1975.

1966-71, 1976-81 and 1981-86, Census of Canada.

United States - 1955-60 and 1965-70 from Internal Migration and Immigrant Settlement, Manpower and Immigration, 1975.

1975-80 from State of Residence in 1975 by State of Residence in 1980.

At the provincial or state level, more substantial differences emerge. The U.S. mobility rates between states for all three periods are approximately double the Canadian mobility rates between provinces. For example, the mobility rate in Canada over the 1976-81 period was 5.1 per cent versus 9.7 per cent in the United States. This result is not surprising given the difference in the average geographical areas of provinces compared to states.

Mobility rates for all three types of moves (changes of residence, municipality and province) in Canada were lower for the 1981-86 period than for the preceding 1976-81 period. This decline probably occurred because of the 1981-82 recession. Mobility rates typically fall during periods of high unemployment. Unfortunately, 1981-86 data are not available for the United States so it is not possible to determine if a similar decline occurred there.

International in-migration has been consistently larger in Canada relative to its population, than in the United States. During the 1956-61 and 1966-71 periods immigration into Canada represented more than 3 per cent of the Canadian population while over similar periods immigration into the United States was equivalent to less than 1.5 per cent of the U.S. population. Although the rate of international migration into Canada declined to 2.5 per cent of the population over 1976-81, it remained above the increased U.S. rate (1.9 per cent, over 1975-80). It has been suggested by Vanderkamp (1973) that higher international immigration rates in Canada compared to the United States may decrease the need for interregional migration in Canada.(1) In recent years, the rate of international migration into Canada has declined further to 2.0 per cent of the population between 1981 and 1986. There is unfortunately no comparable census data for the United States.

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(1) It should be noted that actual international immigration to the United States exceeds the number of reported legal immigrants. However, illegal immigration may not significantly reduce the need for interstate migration given that illegal flows are largely concentrated in a few Southern states.

As shown above, Canada and the United States have fairly comparable gross mobility rates. Net migration flows are also important for labour market flexibility. Gross migration flows can help reduce labour market mismatches, while the resulting net flows affect regional population and labour supply levels.

Because people move into and out of the same region simultaneously, net migration flows are considerably smaller than gross flows. For example, between 1986 and 1987, over 185,000 Canadians changed their province of residence, but the population of gaining provinces only increased by approximately 50,000 (the population of losing provinces declined by a similar amount).

Table 5 contains the ratios of net migration flows to gross migration flows (in the same direction as the net flows) in 1980-81 and 1981-82, for regions of Canada and the United States.(1) These ratios tell us how much net population redistribution results from a given amount of gross migration. For both years, the average ratio is lower in the United States than in Canada. However, the differences between the two countries are not very large and so it appears that, at least for the two years examined, the relationship between net and gross flows was similar in Canada and the United States. In other words, the reallocation of labour supply that takes place for a given amount of gross migration in Canada appears to be comparable to that in the United States.(2)

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(1) Because data for the United States were not available, comparison is restricted to these two years.

(2) This only refers to changes in the size of regional labour forces. Sub-groups of labour (e.g. occupational) can be reallocated without changes in the size of regional labour forces.

Table 5: THE RATIO OF NET MIGRATION TO GROSS MIGRATION FOR CANADA AND THE UNITED STATES, 1980-81 AND 1981-82[1]
(per cent)

CANADA			UNITED STATES		
Region	1980-81	1981-82	Region	1980-81	1981-82
Atlantic	29	26	Northeast	34	31
Central	49	33	North Central	38	32
Prairies	28	32	South	35	32
British Columbia	47	15	West	18	12
Average	39	28	Average	32	27

Notes: (1) The gross migration flow in the same direction as the net migration flow is used. For example, for a negative net migration flow, gross out-migration is used as the denominator. A low ratio indicates a lot of migration in the "wrong" direction (i.e. into the Atlantic Provinces in 1981-82) from the perspective of reducing regional labour market imbalances.

Sources: Canada - Postcensal Annual Estimates of Population by Marital Status, Age, Sex and Components of Growth for Canada and the Provinces, Statistics Canada, Cat. 91-210.

United States - Geographical Mobility: March 1980 to 1981, Current Population Survey, Series P-20, No. 377.

Geographical Mobility: March 1981 to 1982, Current Population Survey, Series P-20, No. 384.

This comparison of geographic mobility in Canada and the United States reveals that the extent of labour mobility is quite similar in the two countries. Although mobility rates in Canada have been slightly lower than rates in the United States, international immigration (as a percent of population) to Canada has consistently been higher than to the United States and this may decrease the need for interregional migration in Canada.

The ratio of net to gross migration flows have also been quite similar in the two countries which means that migration results in a comparable amount of labour supply reallocation.

Canada may require a greater degree of labour market flexibility than the United States if shocks affecting the Canadian economy tend to be more severe. As well Canada may require more geographic labour mobility than the United States, given that this country is not as densely populated as the United States and market sizes for comparable geographic regions are considerably smaller. Thus, regional markets in Canada cannot provide as wide a variety of employment opportunities as regional markets in the United States and as a consequence, Canadian workers may have to extend their job search over larger geographic areas in order to find suitable employment. Any claim however, that Canada exhibits a significantly lesser degree of geographic labour mobility than the United States is at odds with the facts.

4.2 Regional Disparities in the United States

As in Canada, there is a wide dispersion of regional wages and unemployment rates in the the United States. For instance, in 1982 the average hourly earnings of manufacturing production workers were more than 30 per cent higher in Alaska, Washington, and Michigan than in the United States as a whole, and 25 per cent lower than the national average in North Carolina.

The regional dispersion of unemployment rates has generally been smaller in the United States than in Canada. Nevertheless, there is considerable variation in unemployment rates with the Mid-Atlantic, Pacific and the East-North Central regions consistently experiencing above average unemployment rates while the West-North Central and West-South Central regions typically have the lowest rates. For example, in 1984 with a national unemployment rate of 7.5 per cent, regional rates ranged from a low of 4.9 per cent in New England to a high of 9.8 per cent in the East-South Central region.

The persistence of these regional disparities in the United States has motivated numerous studies aimed at determining to what extent they represent equilibrium conditions. The results of studies on interregional wage differences have been mixed. The more recent studies, which take cost-of-living and non-pecuniary factors such as climate into account, have found that similar workers receive similar compensation across regions in the United States.(1) This is consistent with an equilibrium view of regional disparities in wages and implies that observed regional wage gaps should not be taken as evidence that migration flows have not significantly contained regional differences.

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(1) For example, see William E. Cullison. "Equalizing Regional Differences in Wages: A Study of Wages and Migration in the South and Other Regions." Economic Review, Federal Reserve of Richmond May/June 1984.

The equilibrium explanation of unemployment rate gaps has also received empirical support in the United States. According to a study by Marston (1985), unemployment rate differentials between metropolitan areas in the United States largely represent compensation for other existing differences in pecuniary and non-pecuniary advantages. Around two-thirds of the unemployment rate differential represents such compensation and is thus equilibrium unemployment. Moreover, the same study shows that shocks that disturb the equilibrium relationship among the unemployment rates of metropolitan areas tend to be eliminated by labour mobility within a year.

Thus empirical evidence suggests that in the United States the observed disparities in regional unemployment and wage rates largely reflects equilibrium conditions in the labour market. These disparities should not be seen as an indicator that migration has failed to reduce regional disparities. To the best of our knowledge there are no comparable studies for Canada that have addressed the issue of whether regional wage and unemployment rate gaps reflect equilibrium conditions in the labour market.

5. Conclusions

This paper has examined the migration process in Canada and its contribution to labour market adjustment. The main findings are:

- Interregional migration flows have been substantial over the 1961 to 1986 period. Within five-year sub-periods, roughly 4 to 5 per cent of Canadians on average changed their province of residence at least once.

- Mobility rates for Canada compare favourably with those of the United States. Mobility rates for inter-provincial moves (4-5 per cent) are lower than rates for inter-state moves (9-10 per cent), but this difference may largely reflect the differences in geographic size between provinces and states. The mobility rates for all changes of residence and between municipalities/counties (which are more comparable in size) are quite similar.

- Interregional migration flows have been responsive to economic incentives. Migration flows to Alberta are a good example. Between 1976 and 1981, a period when Alberta's economy was booming, net in-migration flows totalled 186,400 or 8.3 per cent of Alberta's 1981 population. When Alberta's economy became weak due to lower oil prices, the net migration flows reversed. Between 1982 and 1987, net outflows totalled 98,000 representing 4.2 per cent of Alberta's population in 1982.

- Migration flows have helped contain regional disparities in unemployment. Regional differences in unemployment would have been considerably larger had it not been for migration. According to one hypothetical scenario, if there had not been any interprovincial migration between 1976-81, everything else remaining the same, the 1981 unemployment rate in Newfoundland would have been 17.5 per cent rather than the actual 13.9 per cent.

These findings indicate that interregional migration has made a significant contribution to the adjustment of labour markets over the past 25 years. It may be true that the Canadian labour market could achieve greater flexibility if interregional migration flows were larger. However, the evidence provided in this paper indicates regional migration flows have been substantial and have served an economically beneficial purpose.

APPENDIX ONE

Table 1: INTERPROVINCIAL MIGRATION FLOWS, 1961-66 TO 1986-87

		NFLD.	P.E.I.	N.S.	N.B.	QUE.	ONT.	MAN.	SASK.	ALTA.	B.C.
1961-71	Net	-34,557	-5,732	-43,520	-45,279	-142,595	236,081	-64,161	-123,493	30,002	192,711
	Gross	(-110,898)	(-42,706)	(-264,305)	(-229,690)	(-556,261)	(1,042,422)	(-338,101)	(-351,791)	(519,515)	(619,213)
1961-66	Net[1]	-15,213	-2,969	-27,124	-25,680	-19,859	85,369	-23,471	-42,094	-1,983	77,747
	Gross	(-47,972)	(-21,161)	(-132,048)	(114,270)	(-238,402)	(468,174)	(-156,116)	(-155,843)	(-232,047)	(262,345)
1966-71	Net	-19,344	-2,763	-16,396	-19,599	-122,736	150,712	-40,690	-81,399	32,005	114,964
	Gross	(-62,926)	(-21,645)	(-132,257)	(-115,420)	(-317,859)	(574,248)	(-181,985)	(-195,948)	(289,452)	(356,868)
1971-81	Net	-20,840	2,925	4,167	6,450	-234,106	-96,386	-69,045	-50,468	244,935	214,910
	Gross	(-123,466)	(40,861)	(222,583)	(183,118)	(-543,291)	(-1,000,221)	(-314,800)	(-284,817)	(812,857)	(727,464)
1971-76	Net	-1,857	3,754	11,307	16,801	-77,610	-38,560	-26,827	-40,752	58,571	92,285
	Gross	(-63,232)	(23,206)	(125,355)	(109,878)	(-263,536)	(-514,612)	(-172,025)	(-167,423)	(352,105)	(337,217)
1976-81	Net	-18,983	-829	-7,140	-10,351	-156,496	-57,826	-42,218	-9,716	186,364	122,625
	Gross	(-62,234)	(-18,484)	(104,368)	(-83,591)	(-279,755)	(-485,609)	(-143,775)	(-117,394)	(460,752)	(350,247)
1981-87	Net	-20,001	519	6,607	-2,601	-84,940	167,045	-6,409	-10,116	-61,407	14,991
	Gross	(-66,848)	(18,940)	(109,251)	(-80,710)	(-233,107)	(556,201)	(-122,245)	(-123,897)	(421,963)	(297,219)
1981-82	Net	-5,693	-856	-1,936	-2,842	-25,790	-5,665	-2,625	-323	36,562	8,705
	Gross	(-14,456)	(-4,231)	(-20,835)	(-16,699)	(-47,139)	(-89,284)	(-24,226)	(-22,131)	(100,046)	(57,983)
1982-83	Net	1,829	636	3,791	3,554	-24,678	23,585	2,544	3,580	-11,650	-1,489
	Gross	(10,193)	(3,403)	(19,166)	(15,016)	(-45,559)	(86,885)	(20,454)	(21,081)	(-71,031)	(-45,710)
1983-84	Net	-2,026	797	3,804	1,792	-17,417	36,400	-339	2,133	-31,986	6,636
	Gross	(-8,779)	(3,219)	(18,024)	(12,450)	(-40,448)	(89,002)	(-17,392)	(18,901)	(-73,112)	(44,088)
1984-85	Net	-3,445	250	2,557	-678	-8,020	33,885	-595	-1,425	-20,771	-1,969
	Gross	(-9,434)	(2,904)	(17,253)	(-11,649)	(-33,003)	(86,724)	(-17,577)	(-17,813)	(-63,679)	(-42,089)
1985-86	Net	-5,716	-76	-1,321	-1,891	-5,349	33,562	-2,297	-6,939	-3,831	-4,501
	Gross	(-11,646)	(-2,906)	(-17,806)	(-13,599)	(-30,964)	(89,397)	(-19,607)	(-22,430)	(-57,862)	(-48,121)
1986-87	Net	-4,950	-232	-288	-2,536	-3,686	45,278	-3,097	-7,142	-29,731	7,609
	Gross	(-14,169)	(-3,441)	(-19,712)	(-16,643)	(-35,994)	(120,574)	(-25,533)	(-27,254)	(-92,795)	(67,187)
1961-87	Net	-75,398	-2,288	-32,746	-41,430	-461,641	306,740	-139,615	-184,077	213,530	422,612
	Gross	(-303,212)	(-105,951)	(-606,913)	(-487,068)	(-1,332,659)	(2,502,458)	(-776,146)	(-760,505)	(1,692,928)	(1,643,896)

Note:

1. Refers to gross in-flow or out-flow depending on the direction of the net flow. If the province gained population through migration the gross in-flow is presented whereas if the population declined due to migration, then the gross out-flow is shown.

Source: Postcensal Annual Estimates of Population by Marital Status, Sex and Components of Growth for Canada and the Provinces, Statistics Canada, Cat. 91-210.

Appendix Two

Empirical Studies on the Determinants of Migration: An Overview

This appendix contains a brief review of Canadian studies that have examined the determinants of migration. It begins by outlining human capital theory, which is the theory underlying the models of migration behavior in the empirical literature. This is followed by a summary of evidence on the importance of a number of economic and social variables, as determinants of migration flows.

Human Capital Theory

In the early 1960s, following the work of T.W. Schultz (1961), G.S. Becker (1962) and L.A. Sjaastad (1962), the analysis of migration was integrated with the emerging human capital theory. In this framework, migration is regarded as an investment in human capital, like training or education. Individuals will migrate if the present value of the expected future lifetime earnings that will be gained from migration, exceeds the present value of expected future lifetime earnings foregone as a result of migration, by an amount sufficient to compensate for any pecuniary and non-pecuniary costs associated with migration.

Empirical studies examining the determinants of migration use the predictions of the human capital theory as a starting point for formulating their hypotheses. However, because expected future lifetime earnings and some of the costs associated with moving are unobservable, researchers have been forced to substitute proxies for these variable. Current wage rates or income levels are usually used to replace expected future lifetime income, while geographic distance is used as a proxy for moving costs. Empirical studies on migration have therefore tested the predictions of a more generalized cost/returns framework rather than the predictions of the human capital model itself.

Methods Used

For estimation purposes, several of the studies reviewed in this appendix have modelled interregional migration in the following way:[1]

$$(1) \qquad \frac{M_{ij}}{P_i} = f(Y_j, Y_i, D_{ij})$$

where M_{ij} is the gross flow of migration from region i to j, P_i is the population of region i, Y is average income and D_{ij} represents the distance between the two regions.

However, this specification does not accurately represent the way that human capital theory, predicts migration decisions are made. According to human capital theory potential migrants will choose to migrate to the region where their expected net present value of future lifetime earnings is maximized. Therefore, if conditions change in one region, for example if income increases in region k and remains unchanged in other regions, migration flows to region k should increase at the expense of migration to other regions. However, as modelled in equation (1), migration flows from region i to region j depend only on conditions in these two regions. An increase in income in region k will not affect migration from region i to region j.

Two Canadian studies by Grant and Vanderkamp in 1976 and by Winer and Gauthier in 1982, have dealt with this problem by modelling migration in terms of a choice model called the strict utility approach. This approach provides a theoretical basis for exclusion of the variables representing conditions in regions other than the origin and destination regions. Under the strict utility approach, migration can be modelled as follows:

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1. Courchene (1970), Laber and Chase (1971) and Mills, Percy and Wilson (1981).

$$(2) \qquad P_{ij} = \frac{e^{V_j}}{\sum_{j=1}^{J} e^{V_j}}$$

where P_{ij} is the probability of moving from i to j and V_j is the vector of attributes associated with destination j such as income and distance. If the V_j's are log-linear in parameters, this equation is the multi-nominal logit model.

With this specification, the probabilities sum to one for each region i and the probability of a particular choice is related to the attributes of all regions. If income rises in region k, the denominator in equation (2) increases and P_{ij} is reduced. Despite this dependence, the ratio of probabilities P_{ij}/P_{ii} is independent of characteristics of region k for all $k \neq i$ and $k \neq j$ because of the property known as independence from irrelevant alternatives. For example, the odds of moving from i to j rather than staying in i are

$$(3) \qquad \frac{P_{ij}}{P_{ii}} = \frac{e^{V_j}}{e^{V_i}}$$

The estimation equation is arrived at by taking natural logs;

$$(4) \qquad \log \left[\frac{P_{ij}}{P_{ii}}\right] = V_j - V_i \qquad j = 1, \ldots J \text{ and } j \neq i$$

The studies reviewed in this appendix have estimated equations similar to equations (1) or (4), using regression techniques.

The Determinants of Migration

This section reviews the empirical evidence on the importance of income, unemployment, fiscal variables, distance and social factors, as determinants of interregional/provincial migration in Canada.

Income

Most empirical migration studies have used average regional income to represent the expected income of migrants. To the extent that migrants differ from the general population, the income they can expect to earn may also differ from the average income earned by the general population, making average regional income an inappropriate proxy for expected income. However, there is empirical evidence to support the use of average regional income in migration equations. Grant and Vanderkamp tested the performance of average gross income of an entire sample population versus average gross income of movers only and average gross income of sub-categories of movers. Inter-provincial migration flows were best explained by the average gross income of the entire sample population.

Their results suggest that migrants base their income expectations on average regional income levels as opposed to average income levels of workers with similar characteristics (i.e. previous migrants). This may indicate that information on more specific income measures, such as the average income of recent migrants, is not readily available to potential migrants. Or it could be that potential migrants place more importance on long-run than short-run income expectations, and that they consider average regional income as a better indicator of long-run income prospects. The average income of recent migrants may contain significant transitory elements (e.g. unusually high incomes because of an economic boom) and be a poor indicator of long-run income prospects.

As an alternative to using average regional income, some studies have constructed an expected income variable. Laber and Chase and Mills, Percy and Wilson used, as their expected income variable, average weekly wages times the probability of being employed, which they approximate with (1- the unemployment rate). In both of these studies migration is modeled as being determined by the differential in expected

incomes between the origin and destination regions. This is in contrast to most studies which enter income for origin and destination regions separately into their regression equations.

Using income in the form of a differential to explain migration, constrains the influence of income in sending and in receiving regions to be identical. However, the pull effect of higher income in receiving regions is expected to be larger than the push effect of lower income in sending regions. This is because income in the origin region has a dual effect. While low income will encourage out-migration, it will also make it more difficult for potential migrants to finance moves.

Irrespective of what income variable is used, or how it is entered into the migration equation, the results of all Canadian studies confirm that income has a significant effect on migration. There is also limited support for the view that the positive effect of income in the destination region outweighs the negative effect exerted by income in the origin region.

The two studies that employed the income differential between regions i and j as their income variables (Laber and Chase and Mills, Percy and Wilson), obtained estimated income coefficients that were statistically significant and of expected sign. The estimated elasticities of migration with respect to income differentials generally fell between 0 and 1.2.

The remaining studies reviewed entered income in the origin and destination regions separately into their regression equations. Courchene, Winer and Gauthier and Grant and Vanderkamp obtained elasticities with respect to income in the receiving region, that ranged from 3.6 to 6.9. MacNevin's estimated elasticities were much lower at about 1.0.

The estimated elasticities with respect to income in the sending region reported by Courchene were substantially lower than the elasticities with respect to income in the receiving region, and those reported by Grant and Vanderkamp were not significantly different from zero. These results support the view that income in the sending region exerts both a push and pull effect on migration flows. However, results obtained by other studies are inconsistent with this view. MacNevin's estimated elasticities with respect to income in the sending regin were quite close to those obtained for income in the receiving region and Winer and Gauthier obtained larger estimated elasticities for income in the sending region (-4.0 to -8.0) than for income in the receiving region.

Unemployment

The income that a potential migrant can expect to earn depends not only on wage rates but also on the probability of finding a job. As noted previously, some migration studies have used unemployment rates in conjunction with wage rates to construct an expected income variable.

Using the unemployment rate to construct expected income is only valid if:

- all unemployment is involuntary (if some unemployment is voluntary, (1- the unemployment rate) will underestimate the probability of employment for a migrant who will truly seek a job);

- (1- the unemployment rate) represents the probability of a migrant, as opposed to an average member of the labour force, finding a job; and

- migrants are indifferent with respect to the source of the variations in expected earned income (wage rate versus probability of employment).

Fields (1979) has criticized the second assumption arguing that regional unemployment rates represent average labour market conditions rather than the marginal probability of migrants finding employment. He suggests that dynamic measures of labour market conditions, such as labour turnover statistics, better reflect the likelihood of migrants finding work. Despite this criticism, Canadian studies have used unemployment rates to measure this probability.

Most studies have entered unemployment rates into their regression equations separately rather than as part of an expected income variable. The separate entry of unemployment rates and income does not constrain migrants to be indifferent about the source of variations in expected income.

The results of empirical studies have been mixed. Some studies have obtained unanticipated signs or insignificant coefficients. Grant and Vanderkamp and Winer and Gauthier's studies fall into this category.

Other studies have found that unemployment has a significant influence on migration. Both MacNevin and Courchene obtained significant coefficients of the expected sign on their unemployment variable. Courchene's results indicate that unemployment in the origin region has a stronger impact than unemployment in the receiving region. MacNevin's results indicate the opposite.

There is even some evidence that the probability of obtaining employment exerts a stronger influence on migration flows than do wages. Based on a review of the studies from various OECD countries, the OECD came to the conclusion that "in the long run most migration seems to be directed towards regions where there are more jobs even when the wages are not particularly attractive in these regions" (OECD (1985), p. 20). However, despite some positive results, unemployment rates generally have not demonstrated the expected influence on migration in empirical tests.

A variety of explanations for the poor performance of unemployment rates in migration equations have appeared in the literature. Lansing and Mueller (1967) attribute it to the low degree of mobility of those that are hardest hit by unemployment (low skilled workers). The "push" of unemployment may be particularly weak for this labour force group. Unemployed workers may also find it difficult to finance a move. Grant and Vanderkamp found that mobility rates decline with the duration of unemployment, a finding which is consistent with this possibility.

The poor performance of unemployment rates in migration equations has also been blamed on simultaneity bias. Migration increases labour supply in the destination region and decreases it in the sending region. Labour demand is also affected by migration, but not by as much as labour supply. As a result, the unemployment rate will rise in the destination region and fall in the origin region when migration takes place. In this way, migration "causes" unemployment as well as unemployment "causes" migration. This simultaneous causality will bias the unemployment rate coefficients in migration equations toward zero.

Evidence from an early U.S. migration study suggests that the simultaneity bias may be serious. C. Blanco (1964) found that changes in "prospective unemployment" explains 85 per cent of the variance in the 1950-57 net interstate migration rates. Prospective unemployment was defined by Blanco as the unemployment expected to occur if workers were not able to migrate between states.

To summarize, although there has been some confirmation of the expected relationship between unemployment rates and migration flows, generally the empirical results on unemployment have been disappointing. A number of explanations have been put forward to explain this poor performance.

Fiscal Variables

It is a simple extension of human capital theory to include fiscal variables as a determinant of the migration decision. In addition to money income considerations, potential migrants may be influenced by the basket of public goods offered and the tax cost of these goods in alternative destinations. Large differences in fiscal benefits among provinces in Canada have stimulated considerable research in the area of fiscally induced migration.

Courchene's was the first Canadian migration study to include fiscal explanatory variables. The measures used were intergovernmental transfers, total federal transfers and unemployment insurance transfers. His specifications were ad hoc in that they included information on fiscal conditions in the origin region only.

Courchene found that all three types of transfers had a significant negative effect on migration. The elasticities of migration with respect to transfers obtained by Courchene (between -0.1 and -0.4) are relatively small compared to his estimated income elasticities of migration (between -3.0 and -1.3 for income in the sending region).

Mills, Percy and Wilson represented the influence of fiscal variables by provincial fiscal surplus levels. Their fiscal surplus variable was defined as the per capita difference between provincial government expenditures net of interest payments on outstanding debt and provincial government revenues raised through the direct and indirect taxation of individuals. This variable is intended to measure the fiscal benefit, relative to the cost borne by individuals, arising from residence in a province.

They found that provincial fiscal surplus levels had a significant effect on migration. Contrary to Courchene's results, they also found that in the Atlantic provinces, Saskatchewan and British Columbia migrants were more responsive to fiscal incentives than income incentives. Their results are even more supportive of the central argument developed by Courchene, that federal transfers to provincial governments and individuals impede migration out of low-income, low employment regions.

Winer and Gauthier tested the influence on migration of the generosity of the unemployment insurance system, unconditional grants, western natural resource revenues, transfers to persons (less unemployment insurance) and federal expenditures, for a number of income classes.(1) Their reported results are too extensive to be fully reviewed in this note and only their main findings will be discussed. In general, their results indicate that fiscal variables have a significant influence on migration but that this influence varies considerably across income classes and regions.

Unconditional grants (mainly equalization payments) were found to have a retarding effect on outmigration of low-income groups in most provinces, Quebec and Manitoba being notable exceptions. Western resources revenues were found to increase out-migration of low- and middle-income classes from Atlantic Canada. Evidence on the influence of western natural resource revenues on migration behaviour of residents of other regions of Canada was less clear. Regional variation in the generosity of the unemployment insurance program and other transfers to persons were found to have reduced the odds of low-income individuals moving from the Atlantic provinces.

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(1) The income classes are: poor with no tax payable, poor with tax payable, middle-income, and high-income. Results are also reported for two more aggregate categories, one combining the two poor groups and the other combining the middle- and high-income categories.

To quantify the impact of fiscal variables on migration, Winer and Gauthier conducted a simulation exercise. For the 1971 to 1977 period, they simulated what interprovincial migration flows would have been if equalization payments and western natural resource revenues had remained at their 1971 levels over the 1971-77 period, and if unemployment insurance benefit periods were not regionally differentiated.

They concentrated on two migration streams: in-migration to Alberta and British Columbia and out-migration from the Atlantic provinces. Their simulation results suggest that migration flows from Ontario (the primary origin) to Alberta and British Columbia were about 23 per cent and 22 per cent higher, respectively, for the poor group, due to the changes in equalization payments and western national resource revenues that took place between 1971-77 and the introduction of regionally extended unemployment insurance benefits. Migration flows of the middle/high-income group were about 12 per cent and 17 per cent higher, respectively.

For out-migration from the Atlantic region, their results indicate that changes in the unemployment insurance program reduced out-migration of the poor to Ontario, by more than 35 per cent, and of the middle/high-income group by approximately 6 per cent. The combined effect of all fiscal changes reduced Atlantic province out-migration of the poor to Ontario by between 17 per cent and 30 per cent (depending on the Atlantic province) while for the middle/high-income group, the fiscal changes increased out-migration to Ontario by between 10 per cent and 50 per cent.

Winer and Gauthier also compared the relative influence of public and private economic determinants of migration. For the poor, the effect of the fiscal (public) variables generally dominated the effect of income (private) differentials. For the middle class and rich groups, trends in migration to Alberta and British Columbia were better

explained by income differentials than fiscal structure. In general, employment and income differentials were more important to the middle- and high-income groups than to the poor group.

MacNevin tested for the influence of both provincial fiscal surpluses and provincial/local expenditures and tax burden on migration. He found that differences in provincial tax burdens strongly affect migration while differences in expenditures at the provincial/local level have a less clear cut effect on migration. The poor performance of the expenditure variables could be attributable to the high degree of colinearity between expenditures in origin and destination provinces. When the destination province's expenditures variable is excluded, the precision of the estimated coefficient of the origin province's expenditures increases. MacNevin also found that his fiscal surplus variables exerted a significant influence on migration flows.

To summarize, the four Canadian studies reviewed in this section all found evidence that fiscal variables influence migration.

Distance and Other Influences

Empirical work has established distance to be one of the most consistent and powerful influences on migration flows. Virtually all Canadian interregional econometric migration studies include some measures of distance and the variable is always of expected sign and highly significant. Vanderkamp (1971) has identified costs of migration associated with distance in addition to financial costs: the psychic costs of moving and costs arising from uncertainty about income due to lack of information.

Courchene, Vanderkamp and MacNevin report evidence that the negative impact of distance on migration has diminished over time indicating improvement in the efficiency of the migration process.

Turning to other influences on migration, it has been well established in the literature that social factors such as age, occupation, education and language composition of the population systematically affect propensities to migrate in Canada.

Summary

This review of Canadian empirical migration literature has shown that:

- Income has a significant effect on migration. Individuals, on average, move from low-income to high-income regions;

- The impact of unemployment on migration is mixed: estimated coefficients are rarely significant and of the right sign. More often they are insignificant, or significant but of the wrong sign;

- Fiscal variables (e.g. unemployment insurance benefits) have an influence on migration flows. Thus migration responds to economic incentives from both market and non market sources;

- Geographic distance has a strong impact on migration, reflecting not only financial costs associated with moving but also psychic costs and the degree of uncertainty associated with a move.

References

Becker, Gary. (1964) Human Capital, New York: National Bureau of Economic Research distributed by Columbia University Press.

Blanco, C. (1964) "Prospective Unemployment and Interstate Population Movements", Review of Economics and Statistics, 46, 221-22.

Canadian Royal Commission on the Economic Union and Development Prospects for Canada, Report, 1985.

Copithorne, Lawrence. (1981) Economic Theories for Small Marine Economies: An Interpretation for Newfoundland. Economic Council of Canada Discussion Paper 196.

Courchene, Thomas J. (1970) "Interprovincial Migration and Economic Adjustment", Canadian Journal of Economics, 3, 550-76.

Cullison, William, E. (1984) "Equalizing Regional Differences in Wages: A Study of Wages and Migration in the South and Other Regions." Economic Review, Federal Reserve of Richmond, May/June.

Frank, James. (1981) Provincial Differences: A Challenge to Compensation and Relocation Policies, The Conference Board.

Grant, E. Kenneth, and John Vanderkamp. (1976) The Economic Causes and Effects of Migration: Canada, 1965-71, Economic Council of Canada, Ottawa: Supply and Services Canada.

Laber, G., and R.X. Chase. (1971) "Interprovincial Migration in Canada as a Human Capital Decision", Journal of Political Economy, 79, 795-804.

MacNevin, A.S. (1983) Fiscal Integration and Subcentral Public Sector Inducements to Canadian Inter-provincial Migration. Ph.D. Thesis, McMaster University.

Manpower and Social Affairs Committee. (1985) Labour Market Flexibility MAS85(25), OECD.

Marston, Stephen, J. (1985) "Two Views of the Geographic Distribution of Unemployment," Quarterly Journal of Economics, Feb. 1985, Vol. C., p. 57-79.

Mills, K.E., M.B. Percy and L.S. Wilson. (1983) "The Influence of Fiscal Incentives on Interregional Migration: Canada 1961-78. The Canadian Journal of Regional Science, 6(2), pp. 208-27.

Schultz, T.W. (1961) "Investment in Human Capital", American Economic Review, vol. 51, no. 1, pp. 1-17.

Shaw, Paul. (1985) Intermetropolitan Migration in Canada: Changing Determinants Over Three Decades N.C. Press Ltd., Toronto.

Sjaastad, L.A. (1962) "The Costs and Returns of Human Migration", Journal of Political Economy, 70 (supplement), 80-93.

Vanderkamp, J. (1970) "The Effects of Out-Migration on Regional Employment", The Canadian Journal of Economics, Vol. 3 p. 541-49.

_____. (1971) "Migration Flows and Their Determinants and the Effects of Return Migration", Journal of Political Economy, 79, 1012-13.

_____. (1973) Mobility Behavior in the Canadian Labour Force, Economic Council of Canada Special Study No. 16, Ottawa: Information Canada.

Winer, Stanley, and Denis Gauthier (1982) Internal Migration and Fiscal Structure -- An Econometric Study of the Determinants of Interprovincial Migration in Canada, Economic Council of Canada, Ottawa: Supply and Services Canada.